

## Unit 6: Day 2: Investigating and Classifying Triangles

Grade 7



### Math Learning Goals

- Classify triangles by their sides and angles (scalene, isosceles, equilateral, acute, obtuse, right).
- Investigate triangle properties (e.g., the largest angle in a triangle lies across from the longest side).
- Classify triangles by the number of lines of symmetry they possess.

### Materials

- geoboards
- straws
- paper strips
- protractor
- BLM 6.2.1

### Assessment Opportunities

#### **Minds On...**

#### Pairs → Word and Picture Sort

Students sort the set of cards into categories and explain their reasoning and criteria for the sort. Students then sort the cards in a different way, using different criteria (BLM 6.2.1).

#### Whole Class → Discussion

Discuss lines of symmetry and how this relates to the type of triangle.

#### **Action!**

#### Pairs → Investigation

Students create a variety of triangles to determine the relationship between length of sides and angle sizes. Students can use geoboards, straws, paper strips, or GSP®4 to help them investigate the relationship.

Focus the students' attention on looking for the relationship between side length and opposite angle sizes: What relationship can you find between the length of the sides in a triangle and the size of the opposite angle?

Students sketch a triangle, measuring and recording the size of each angle and the length of each side. They create enough triangles to notice a relationship and record their observations, e.g., the largest angle lies across from the longest side; the smallest angle lies across from the smallest side; if two angles are equal, then the two opposite sides are equal. Circulate, taking note of which students to ask to share in the whole-class discussion.

**Reasoning and Proving/Oral Questions/Checklist:** Assess students' ability to determine triangle properties through investigation.

Focus the students' attention on what proving, reasoning, reflecting, and communicating "looks like" and "sounds like."

Record types of triangles on Word Wall.

#### **Consolidate Debrief**

#### Whole Class → Discussion

Students choose a triangle to share with the class and cut it out for posting. One student shares a sample triangle, then another student shares a different type of triangle. Continue until there are enough samples to discuss the relationship.

Post their samples in categories (scalene; equilateral; isosceles; obtuse; right; 1, 2, 3 lines of symmetry). Discuss and record the relationships students discovered. Connect to lines of symmetry as well.

#### Home Activity or Further Classroom Consolidation


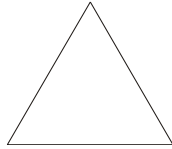
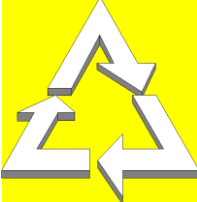


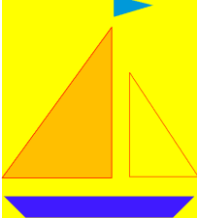

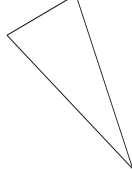
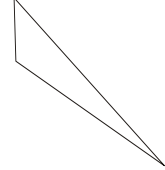
- Write a journal report about discoveries you made about the relationship between the length of the sides in a triangle and the size of the opposite angle. Illustrate your report with diagrams.
- Find pictures of quadrilaterals used in daily life and bring them to class.

Collect and assess students' journal entries.

*Reflection*

## 6.2.1: Classifying Triangles Word Sort

Cut apart and place the set of cards in an envelope. Make sufficient copies for students to work in pairs.

	<b>1 line of symmetry</b>	<b>Equilateral triangle</b>	
	<b>All three angles are equal</b>		<b>Obtuse-angled triangle</b>
<b>All three angles are acute</b>	<b>Right-angled triangle</b>	<b>3 lines of symmetry</b>	
	<b>Two sides are equal</b>	<b>Isosceles triangle</b>	<b>Three sides are equal</b>
<b>Acute-angled triangle</b>	<b>Two angles are acute</b>		<b>0 lines of symmetry</b>
<b>Scalene triangle</b>			<b>1 angle is obtuse</b>